

The goal of this proposal is to perform simultaneous x-ray spectral and millisecond timing observations of accreting neutron stars to further our understanding of their accretion dynamics and in the hope of using these systems as probes of the physics of strong gravitational fields. NAG5-9104 is the successor grant to NAG5-8408.

Observations using the Rossi X-Ray Timing Explorer (RXTE) and BeppoSAX were performed of 4U1702-429, 4U1735-44, and Cyg X-2. Unfortunately, only a small fraction of the approved observing time was obtained for the first two targets and the data are of limited scientific value.

Data analysis has been completed on the observations of Cyg X-2. We discovered a correlation between the frequency of the horizontal branch oscillations (HBO) and a soft, thermal component of the x-ray spectrum likely associated with emission from the accretion disk. This correlation may place constraints on models of the oscillations. A paper based on these results appeared in the *Astrophysical Journal*.

Paper

"X-Ray Observations of Cygnus X-2", S. Piraino, A. Santangelo, and P. Kaaret, *Astrophys. J.* (2002) 567, 1091-1101.